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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE
BOARD OF PATENT APPEALS AND INTERFERENCES

Attorney Docket No. PHN 15,815

Applicant: Peter Van De Witte et al.

Title: LIQUID CRYSTAL DISPLAY DEVICE, COMPENSATOR LAYER
AND METHOD OF MANUFACTURING A RETARDATION FOIL

Appln. No.: 08/857,756

Filing Date: May 15, 1997

Examiner: A Merlino

Art Unit: 2877

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REQUEST FOR REHEARING UNDER 37 CFR § 1.197

Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

This paper is filed in triplicate and within the two month period stipulated in 37 CFR 1.197(b).

It is respectfully submitted that the Board has misapprehended and overlooked salient points with respect to the issues on appeal in the Decision on Appeal mailed June 26, 2003. A rehearing and reconsideration are therefore courteously solicited.

In the Decision issued by the Board mailed on June 26, 2003, the Board has advanced the opinion that the Examiner has proffered different claim interpretations in the answer and that these have not been acknowledged or addressed in the reply brief. The board has then expanded on these two different interpretations and has concluded that they are, in either case, met by the disclosure of the Ito et al. reference. This conclusion is respectfully traversed.

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FIRST INTERPRETATION

In accordance with this interpretation, the Board has advanced that:

“the claim feature in question might be interpreted as referring to a 60-120 degree angle formed by the average direction of orientation of the liquid-crystal molecules relative to each other within each of the retardation foils. When so interpreted, this 60-120 degree angle might be considered as corresponding to, for example, the **tilt angle** previously recited in the appealed independent claim.” (Emphasis added)

The board’s reference to the “tilt angle which was previously recited”, is noted. However, it is respectfully submitted that the claims in fact set forth **two angles**. A **tilt angle** and a **twist angle**. These are different angles. Claim 1 recites:

A liquid-crystal display device having a displace cell which comprise a layer of a nematic, liquid-crystal material between two substantially parallel substrates, which display cell is further provided with polarizers, characterized in that the display cell comprises at least two retardation foils which predominately contain polymerized or vitrified liquid-crystalline material exhibiting a **tilt angle** relative to the substrates, and the **average** directions of orientations of the liquid-crystal molecules in the polymerized or vitrified liquid-crystalline material of each of the retardation foils, making **an angle** with each other which ranges between 60 and 120 degrees, viewed at right angles to the substrates. (Emphasis added)

In the claims on appeal a "tilt" angle is set forth and although not specifically referred to such in the appealed claims a being "twist" angle, this angle is recited as being between 60-120 degrees.

The Board has opined that this 60-120 degree angle required under this interpretation, would be satisfied by the Ito's inclined angles shown in Figure 2 and described in lines 12-40 in column 17. Column 17, lines 12-40 set forth that:

The optically anisotropic layer 23 is provided on the orientation layer 22 which is formed on the transparent support 21. The discotic liquid crystalline compounds 23a, 23b and 23c constituting the optically anisotropic layer 23 are arranged on the orientation layer 22 in such a manner that the planes of discotic structure units Pa, Pb and Pc, are inclined from planes 21a, 21b and 21c which are parallel to a plane of the transparent support 21 and the inclined angles θ_a , θ_b and θ_c (angle between the plane of discotic structure unit and the plane of transparent support) increase, in order, with increase of distance in a direction of depth (thickness) from a bottom of the optically anisotropic layer. The reference number 24 is the normal of the transparent support.

The discotic liquid crystalline compound is a planar molecule, and therefore has only one plane (e.g., 21a, 21b, 21c) in the molecule.

The inclined angle varies within the range of **5 to 85** degree (preferably **10 to 80** degrees). The minimum of the inclined angle is in the range of 0 to 85 degrees (preferably 5 to 40 degrees) and the maximum of the inclined angle is in the range of an angle of 5 to 90 degree (preferably 30 to 85 degrees). In FIG. 2, the inclined angle of the plane of discotic unit (e.g., θ_a) on the support side approximately corresponds to the minimum,

and the inclined angle (e.g., θ_c) approximately corresponds to the maximum. Further, the difference of the minimum (e.g., the inclined angle of the discotic unit on the support side) and the maximum (e.g., the inclined angle on a surface side) preferably is in the range of **5 to 70 degrees (especially 10 to 60 degrees)**. (Emphasis added)

The Board takes the position that Ito et al. teach at column 17, lines 36-40, that inclined angles preferably increase with distance and the difference between the maximum and minimum is in the range of **5-70 degrees**.

However, the **average** of a range of 5-70 degrees wherein 5 is the minimum and 70 is the maximum is **32.5**. This does not fall in the 60-120 degree range as presumed. The average of the preferable range of 10-60 degrees is in fact 25.0 and even further removed from the claimed range. In fact, none of the ranges quoted above have an average value which is near the lower range limit of 60 degrees.

This disclosure neither discloses nor suggests the first interpretation of the claimed subject matter. For this reason, it is respectfully submitted that the Board has misapprehended the disclosure of the Ito et al. reference and the difference between the Ito et al. disclosure and the claimed subject matter.

SECOND INTERPRETATION

In this case the Board has opined that if the 60-120 degree angle is interpreted as between direction of orientations of the liquid crystal molecules in one of the retardation foils as compared to those [sic] that in another retardation foil such a limitation would be satisfied by Ito et al. The Board refers to Fig. 10 of Ito et al. which shows compensatory sheets 102a and 102b and asserts that, as displayed in this figure, these sheets exhibit directions 102Ma and 102Mb that are at a 90 degree angle with respect to each other.

However, the angle between 102Ma and 102Mb is clearly shown in Fig. 11 as angle β_2 and, as disclosed at column 22, lines 63-65, angle β_2 is formed by the projected directions showing the **minimum retardation values** 102Ma, 102Mb preferably are in the range of 0-90 degrees.

There is no disclosure of the **maximum retardation values** and therefore no way to accurately determine the **average** value in this situation and therefore no anticipation of the claimed average angle range.

Therefore, it is respectfully submitted that the Board has misapprehended the disclosure of Ito et al. in this instance also.

ADDITIONAL COMMENTS

The Board has couched the opinion in terms of anticipation and has in fact noted that "a lack of novelty is the ultimate of obviousness". However, as noted above, the novelty of the claimed subject matter remains and it is respectfully submitted that the Board has in light of the misapprehensions noted above, erred in sustaining the Examiner's rejection under § 103.

It is respectfully submitted that both the Board and the Examiner have overlooked the fact that it is the "average" angle range which is claimed and the position that Ito et al. disclose the range of angles to be 0-90 degrees overlaps the range of 60-180 degrees is incorrect in that the average of 0-90° is only 45° and in that there is no overlap. Indeed both the Board and the Examiner have overlooked the fact that angle ranges must be used to derive an average value before this average value can be compared with the average value range which is set forth in the claims.

Rehearing and favorable reconsideration is therefore courteously solicited.

Date: August 12, 2003

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